



Experiment 2

Student Name: Suraj Kumar Dev

Branch: CSE

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UID: 23BCS10980

Section/Group: KRG 3-A

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1. Aim: To demonstrate the use of self-joins and conditional joins in SQL for managing hierarchical employee relationships and performing conditional lookups using LEFT JOIN and IFNULL across two related tables.

- a. Employee-Manager Hierarchy Using Self-Join
- b. Conditional Join Between Financial Tables

2. Objective:

- To design and populate relational tables with hierarchical and temporal data.
- To perform a **self-join** on an employee table to retrieve manager-employee relationships.
- To implement a **conditional LEFT JOIN** between two tables to handle non-matching records.
- To apply the **IFNULL** function to handle missing values in joined queries.
- To practice using joins for **querying structured business-related datasets**.

3. DBMS script and output:

Solution-(a)

```
CREATE DATABASE company;
```

```
USE company;
```

```
CREATE TABLE employee (
```

```
    empid INT PRIMARY KEY,
```

```
    ename VARCHAR(50),
```

```
    department VARCHAR(50),
```

```
    managerid INT
```

```
);
```

```
INSERT INTO employee (empid, ename, department, managerid) VALUES
```

```
(1, 'Alice', 'HR', NULL),
```

```
(2, 'Bob', 'Finance', 1),
```



```
(3, 'Charlie', 'IT', 1),  
(4, 'David', 'Finance', 2),  
(5, 'Eve', 'IT', 3),  
(6, 'Frank', 'HR', 1);
```

SELECT

```
e.ename AS EmployeeName,  
e.department AS EmployeeDepartment,  
m.ename AS ManagerName,  
m.department AS ManagerDepartment
```

FROM

```
employee e
```

LEFT JOIN

```
employee m ON e.managerid = m.empid;
```

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Results

Messages

	EmployeeName	EmployeeDepartment	ManagerName	ManagerDepartment
1	Alice	HR	NULL	NULL
2	Bob	Finance	Alice	HR
3	Charlie	IT	Alice	HR
4	David	Finance	Bob	Finance
5	Eve	IT	Charlie	IT
6	Frank	HR	Alice	HR

Solution-(b)

```
create database company2;
```

```
use company2;
```

```
CREATE TABLE Year_tbl (
```

```
    ID INT,
```

```
    YEAR INT,
```

```
    NPV INT
```

```
);
```



CREATE TABLE *Queries* (

ID INT,

YEAR INT

);

INSERT INTO Year_tbl (ID, YEAR, NPV)

VALUES

(1, 2018, 100),

(7, 2020, 30),

(13, 2019, 40),

(1, 2019, 113),

(2, 2008, 121),

(3, 2009, 12),

(11, 2020, 99),

(7, 2019, 0);

INSERT INTO *Queries* (ID, YEAR)

VALUES

(1, 2019),

(2, 2008),

(3, 2009),

(7, 2018),

(7, 2019),

(7, 2020),

(13, 2019);

SELECT

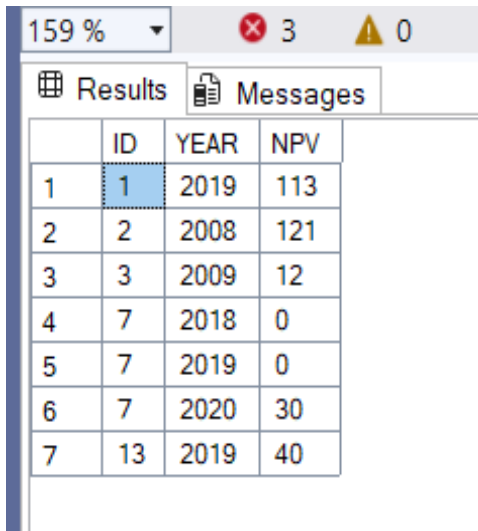
q.ID,

```

q.YEAR,
IFNULL(y.NPV, 0) AS NPV
FROM
  Queries q
LEFT JOIN
  Year_tbl y ON q.ID = y.ID AND q.YEAR = y.YEAR;

```

OUTUPT:



	ID	YEAR	NPV
1	1	2019	113
2	2	2008	121
3	3	2009	12
4	7	2018	0
5	7	2019	0
6	7	2020	30
7	13	2019	40

4. Learning Outcomes (What I have Learnt):

- Understand how to model and query **hierarchical relationships** using self-joins.
- Learn to perform **LEFT JOINS** to include unmatched records from one table.
- Apply **composite join conditions** on multiple columns (e.g., ID and YEAR).
- Use **IFNULL** to handle NULL values in result sets for reporting purposes.
- Develop SQL skills for solving **real-world data retrieval scenarios** in organizations.